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NEW SPECIES OF TRYPANEIDÆ, WITH KEY TO THE NORTH AMERICAN GENERA

By C. H. Curran

Several of the new species described in the following pages were contained in a collection of trypaneids forwarded for determination by Mr. S. C. Jones of Corvallis, Oregon. Mr. Jones has spent considerable time during the past few years studying the family from the economic aspect and as a result has secured excellent series of many species. The determination of the specimens has necessitated the examination of a great deal of undetermined material in the Museum Collection, has brought to light several undescribed forms from various parts of the United States, and has resulted in the identification of most of the species recorded from the Nearctic region.

In view of the fact that representatives of all but three of the known North American genera are represented in the Museum Collection a key for their separation is presented. Up to the present time the separation of genera has been based chiefly upon wing pattern, although Hendel has long since supplemented this with other characters, chiefly the arrangement of the bristles on the thorax. While it is true that many genera have a typical wing pattern by which they may be separated from related forms, it is obvious that such a basis for generic separation cannot be considered satisfactory and there has always been doubt concerning the proper disposition of many species. The presence or absence of setulæ on the third vein has been used to separate genera, but the character is apparently unsatisfactory and in many cases cannot be used for the separation of species within a genus, due to the great variation in the number and extent of the setulæ. The characters which I believe to be most satisfactory may be gleaned from a perusal of the key.

It will be noted that several generic names have been changed and some of the described species will naturally trace out to genera other than those in which they are now included. The union of *Tephritis* Latreille and *Euaresta* Loew is necessary and the latter name falls as a synonym. The two genera intergrade in wing pattern, a reduction of the brown color leading to *Tephritis*.

In this paper are numerous references to a revision of the Trypetidæ of northeastern America by Phillips, an excellent contribution despite the fact that two or three generic names have not been correctly applied and that unsatisfactory characters were used for the separation of the species in at least two of the genera. The illustrations prepared by Mrs. Phillips are excellent and make the determination of the included species a relatively simple matter. It is unfortunate that Coquillett, who described so many of our species, failed to illustrate any of them, and they are, as a result, very difficult to identify. In a future publication the author proposes to illustrate the North American genera and would appreciate specimens of genera not included in the following key, or any specimens which do not trace out satisfactorily.

The types of the new species described in this paper are in The American Museum of Natural History.

Key to Genera

1.—Scutellum with six bristles.....2.
Scutellum with not more than two pairs of bristles.....4.
2.—Front more than half as wide as the head.....Xenochæta Snow.
Front decidedly less than half as wide as the head.....3.
3.—Triangle of the anal cell longer than the petiole.....Blepharoneura Loew.
Triangle of the anal cell shorter than the petiole.....Hexachæta Loew.
4.—Scutellum with two pairs of bristles, the apical pair strong.....13.
Scutellum with one pair of strong bristles, or, if with two pairs, the apical pair is absent and there are two pairs on the basal half.....5.
5.—Frontal bristles well developed; ocellars present.....6.
Frontals weak; ocellars absent; ovipositor very long and cylindrical. Toxotrypanea Gerstæcker.
6.—Head higher than long.....7.
Head longer than high.....Ensina Loew.
7.—Scutellum without a deep longitudinal furrow.....8.
Scutellum swollen and with a deep longitudinal furrow.....Peronyma Loew.
8.—Front immediately above the antennæ almost half as wide as the head and very much wider than either eye.....9.
Front much less than half as wide as the head and, anteriorly, little if any wider than one eye from anterior view.....10.
9.—Anterior pair of dorsocentrals situated far in front of a line drawn between the anterior pair of supra-alar bristles. (Type: *Trypeta latifrons* Loew.) Eurostina, n. g.
Anterior pair of dorsocentrals situated at most slightly in front of a line drawn between the anterior supra-alars, or behind such a line. (Type: *Trypeta solidaginis* Fitch).....Eurosta Loew.
10.—Front twice as long as the width at vertex.....Xanthaciura Hendel.
Front much less than twice as long as the width at vertex.....11.

11.—Front with at least three pairs of convergent frontal bristles.....12.
Front with two pairs of convergent frontals.....DYSEUARESTA Hendel.
12.—Head almost as long as high, the oral margin projecting; eyes oblique, broadly oval.....TRYPANEA Schrank.
Head much higher than long, the oral margin but little projecting; eyes perpendicular, rather narrowly oval.....ACIURINA, n. g.
13.—Fourth vein not or scarcely curved forward at the apex.....14.
Fourth vein strongly curved forward at the apex.....ANASTREPHA Schiner.
14.—Anterior pair of dorsocentrals situated far in front of a line drawn between the anterior pair of supra-alars.....28.
Anterior dorsocentrals situated at most slightly in front of such a line, usually behind.....15.
15.—Proboscis very long and slender, geniculate.....ALEOMYIA Phillips.
Proboscis short and thick, not geniculate in the middle.....16.
16.—Arista short plumose or bare.....17.
Arista long plumose.....MOLYNOCŒLIA Giglio-Tos.
17.—Scutellum not mostly shining black, or the apex yellow.....18.
Scutellum mostly shining black, the base narrowly yellow..CERATITIS McLeay.
18.—Acrostical and dorsocentral bristles in an almost transverse row.
TRYPETA MEIGEN.
Dorsocentrals placed far in front of acrosticals so that there appear to be two pairs of dorsocentrals.....19.
19.—Notopleura with several setulæ near the posterior bristle....EPOCHRA Loew.
Notopleura bare.....20.
20.—Cheeks at most slightly more than one-fourth as wide as the eye-height.....21.
Cheeks at least two-fifths as wide as the eye-height; oral margin not strongly produced.....27.
21.—Stigmatal cell long and narrow, four times as long as wide; wings reticulate.
ICTERICA Loew.
Stigmatal cell shorter and broader, not over three times as long as wide; wings not reticulate.....22.
22.—Notopleura densely pollinose.....26.
Notopleura not pollinose.....23.
23.—Third antennal segment not longer than the basal two combined, never triangularly produced at the tip.....25.
Third antennal segment elongate, usually produced as a sharp triangle at the upper apex.....24.
24.—Occiput strongly swollen on the lower half, at the middle more than half as wide as the eye in profile.....ZONOSEMA Loew.
Occiput less swollen, at the middle not half as wide as either eye.
RHAGOLETIS Loew.
25.—Face carinate, not concave in profile.....ACIDIA Loew.
Face concave in profile, the oral margin produced.....TERELLIA Desvoidy.
26.—Wings half as wide as long, reticulate.....XANTHOMYIA Phillips.
Wings narrow, hyaline or fasciate.....NEASPILOTA Osten Sacken.
27.—Fourth vein ending at or near the tip of the wing.....ŒDICARENA Snow.
Fourth vein ending behind the tip of the wing, the apex near the third vein; wings rather pointed.....STRAUSSIA Desvoidy.

28.—Anterior and posterior cross-veins separated from each other by much less than half the length of the anterior cross-vein; posterior cross-vein very strongly recurrent.....POLYMORPHOMYIA Snow.
Cross-veins much less approximate.....29.
29.—Scutellum strongly shining black, swollen and hemispherical.....30.
Scutellum more or less dull, more or less flattened or at most moderately convex.....31.
30.—Parafacials bare.....PROCECIDOCHARES Hendel.
Parafacials with a row of rather long pale hairs.....CALLACHNA Aldrich.
31.—Notopleura cinereous pollinose.....32.
Notopleura bare or rather thinly brownish pollinose.....34.
32.—Anal cell drawn out posteriorly into an elongate triangle.....33.
Anal cell not drawn out apically or with a short, transverse triangle. (*Euaresta* Loew).....TEPHRITIS Latreille.
33.—Wing margin with radiating brown rays on the apex in front.
TETREUARESTA Hendel.
Wing margin brown in front of the fourth vein.....ACROTAENIA Loew.[1]
34.—Front very much wider than long.....TOMOPLAGINA, n. g.
Front longer than wide.....35.
35.—Anterior cross-vein situated not more than its own length from the posterior, both strongly oblique.....TOMOPLAGIA Coquillett.
Anterior cross-vein situated more than its length from the posterior, both never strongly oblique.....36.
36.—Stigmal cell scarcely longer than wide.....STENOPA Loew.
Stigmal cell usually twice as long as wide, always much longer.....37.
37.—Front with two pairs of black reclinate bristles, none converging.
PARACANTHA COQUILLETT.
Front with three pairs of convergent frontals.....38.
38.—Costal spines short and not very conspicuous.....39.
Costal spines rather long and conspicuous.....EUTRETA Loew.
39.—Wings with cross-bands.....TERELLIA Desvoidy.
Wings with a brown pattern containing hyaline indentations and spots.
EUCOSMOPTERA PHILLIPS.

EUROSTINA, new genus

Differs from *Eurosta* Loew in having the anterior pair of dorsocentral bristles situated close to the suture. Front more than half as wide as the head; three pairs of convergent frontals; head higher than long; scutellum normally with a single pair of bristles, sometimes with two pairs but they are lateral, the apical pair of bristles always absent; wings broad, brown, reticulate, the apex with brown rays; anal cell not drawn out into a long triangle.

GENOTYPE.—*Trypeta latifrons* Loew.

EUROSTA Loew

Similar to *Eurostina*, new genus, except in regard to the position of

[1]No specimens are available but the genus seems to be distinct from the later *Tetreuaresta* Hendel.

the anterior pair of dorsocentrals, which are, in this genus, situated almost in a line with the anterior supra-alar bristles, or behind a line drawn between these bristles.

Phillips separates the species by the number of scutellar bristles. The normal number is two, but they vary from two to six and there may be two or three on one side and fewer on the other. *Eurosta* belongs in a group of genera possessing, typically, a single pair of scutellar bristles, the apical bristles being absent. When more than a single pair of bristles occur they are lateral and situated on the basal half of the scutellum, as measured along the sides. The scutellum is transverse.

TRYPANEA Schrank

This name replaces *Urellia* Loew and applies to a group of species having a rather characteristic wing pattern and possessing only a single pair of bristles on the scutellum. The determination of the species is rather difficult as no key is available and Coquillett's comparisons with supposedly related species are very misleading. The Museum Collection contains all but four of the described North American species, lacking *dacetoptera* Phillips, *eugenia* Wulp, *nigricornis* Coquillett, and *vicina* Wulp. Inasmuch as all but *nigricornis* are figured, and as this species is easily recognizable by the color of the antennæ, I am able to present a table of species which will, it is hoped, prove satisfactory. *T.* (*Trypeta*) *femoralis* Thomson, described from California, is omitted, as the species is unrecognizable from the description. *T. stigmatica* Coquillett must be removed from the genus because of the presence of two pairs of strong scutellar bristles.

The amount of variation in the wing maculation is not great, although in one or two of the species variation is evident, especially as regards the presence or absence of a second brown ray in the discal cell. In *wheeleri* there is sometimes a second ray, but it is normally absent.

TABLE OF SPECIES

1.—No brown or gray spot near the middle of the fifth vein.....9.
A small gray spot behind the middle of the discal cell or the fifth vein bordered with deep brown for part of its length.....2.
2.—No brown rays extending over the apices of the third and fourth veins, the apex of the wing entirely hyaline.....3.
Apex of the wing with brown rays extending along the third and fourth veins..4.
3.—No brown ray extending to the stigma, the stigmal cell wholly pale yellowish. *radifera* Coquillett.
A brown ray extends to and crosses the stigmal cell....*imperfecta* Coquillett.

4.—A small, roundish gray or pale brown spot near the middle of the fifth vein....5.
An elongate deep brown spot bordering the fifth vein.....6.
5.—A tranverse oval hyaline spot just beyond the anterior cross-vein.
actinobola Loew.
Base of apical cell brown (Mexico).....*vicina* Wulp.
6.—Stigmal cell not wholly hyaline or very pale yellowish.....7.
Stigmal cell entirely pale.....*hebes*, n. sp.
7.—Stigmal cell brown on its full width.....8.
Stigmal cell with an isolated brown spot basally on the anterior half.
microstigma, n. sp.
8.—Apical cell with a transverse, hyaline basal spot, the first basal cell wholly hyaline.....*jonesi*, n. sp.
Apical cell brown basally, the first basal with the apex brown..*wheeleri*, n. sp.
9.—Basal half of the wing with many pale brown markings.....*abstersa* Loew.
Basal half of the wing without brown markings.....10.
10.—The brown band extending across the apical fourth of the discal cell continues to the wing margin.....*eugenia* Wulp.
This band is absent or does not extend to the wing margin.....11.
11.—Two brown bands in the apical half of the discal cell.....12.
Only one brown band in the discal cell.....13.
12.—Apex of first basal cell brown.....*dacetoptera* Phillips.
First basal cell wholly hyaline.....*polyclona* Loew.
13.—Third antennal segment reddish.....14.
Third antennal segment black.....*nigricornis* Coquillett.
14.—First anterior brown ray very wide on its whole length and almost filling the stigmal cell.....*bisetosa* Coquillett.
First anterior ray narrow, crossing the stigmal cell (*mevarna* Walker).
daphne Wiedemann.

Trypanea jonesi, new species

Figure 6

Typically six brown rays on the apical and posterior parts of the wing. Length, 3 to 3.5 mm.

FEMALE.—Head brownish yellow, with cinereous pollen, the front sometimes quite ashy in color. Front wide, very slightly narrowing anteriorly, with three pairs of convergent and one pair of reclinate black bristles. Oral margin produced, the head higher than long; cheeks narrow; occiput mostly brown in ground color, the hair whitish. Antennæ reddish, the third segment sometimes rather brown apically, subangulate at upper apical corner; arista brown.

Thorax blackish in ground color, densely cinereous pollinose, the hair whitish, yellow on the pleura; humeri yellow in ground color. Bristles of the dorsum black, the others brownish.

Legs reddish, the posterior four coxæ brown; hair mostly black, the bristles yellowish.

Wings whitish hyaline, with brown markings as shown in the figure. Halteres reddish or dull orange.

Abdomen black, cinereous pollinose, partly subshining gray, the ovipositor shining black. Hair yellow, short and appressed; black on the apical half of the ovipositor. Venter cinereous.

TYPES.—Holotype, female, Corvallis, Oregon, August 19, 1931 (S. C. Jones), reared from *Aster douglasii*. Paratypes: three females, Corvallis, August 11, 24 and 28, 1931, from the same host; three females, Crater Lake, Oregon, South rim, 7100 ft., July 29, 1930 (H. A. Scullen); female, Crater Lake Park, Dutton Ridge, Oregon, August 11, 1930 (H. A. Scullen); female, Jackson's Lake, Wyoming, September 16, 1895 (W. M. Wheeler).

This species is most nearly related to *actinobola* Loew but may be at once distinguished by the elongate brown spot bordering the fifth vein, the much more extensively brown stigma, more shining abdomen, distinctly shorter head, etc.

Trypanea wheeleri, new species

Figure 1

Similar to *jonesi*, new species, but the brown color extends to well inside the anterior cross-vein. Length, about 3.25 mm.

FEMALE.—Head reddish, the pollen whitish; upper half of the occiput black in ground color. Front wide, narrowing anteriorly; three pairs of convergent and one pair of reclinate frontals, strong ocellars and the vertical bristles black, the occipital cilia whitish. Occipital hair yellowish, sides of oral margin with very short black hairs on the anterior third. Proboscis reddish; palpi reddish, with pale base. Antennæ reddish, the second segment with very short black hair; arista brown. Head one-fourth higher than long, the oral margin projecting; third antennal segment obtuse at upper apex.

Thorax black in ground color, cinereous pollinose, the humeri and notopleura reddish; hair pale yellowish; dorsal bristles black, a bristle on the mesopleura and the sternopleural brown; notopleural bristle pale yellowish.

Legs reddish, the hair mostly brown, the bristles yellowish.

Wings whitish hyaline, with brown pattern as shown in the figure. There is, in two specimens, an additional brown ray extending from the posterior end of the anterior cross-vein to the apex of the brown cloud lying along the fifth vein and this seventh ray may be produced, within the discal cell, toward the sixth ray.

Abdomen black in ground color, rather thinly cinereous pollinose; hair yellow, rather abundant and longer than usual. Ovipositor shining black, with black hair on the apical half, a little more than half as wide as long.

TYPES.—Eight females, holotype and paratypes, San Diego Co., California, February 23, 1897 (W. M. Wheeler Collection).

Trypanea microstigma, new species

Figure 8

Distinguished by the very small, brown stigmal spot and the brown stripe lying along the fifth vein. Length, 3.5 mm.

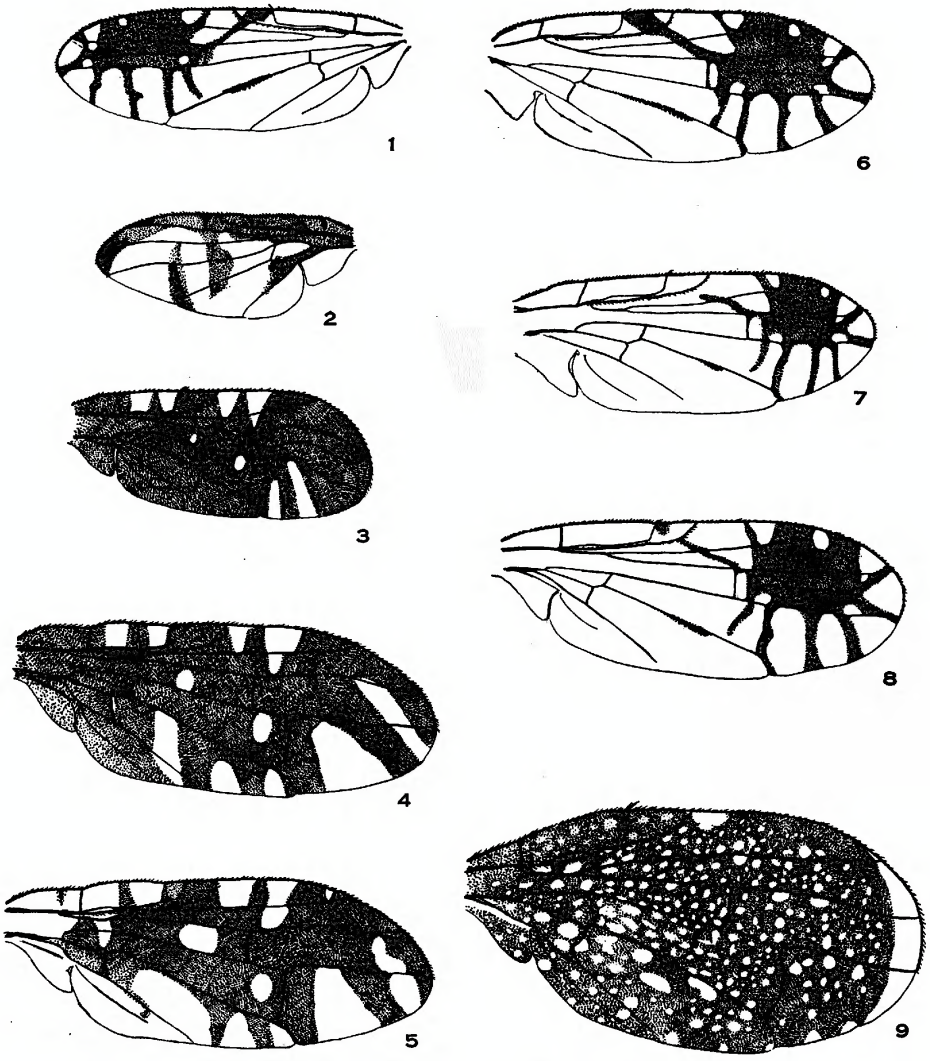

Fig. 1. *Trypanea wheeleri*, n. sp.
Fig. 2. *Trypeta versatilis*, n. sp.
Fig. 3. *Aciurina thoracica*, n. sp.
Fig. 4. *Aciurina pacifica*, n. sp.
Fig. 5. *Aciurina trixa*, n. sp.
Fig. 6. *Trypanea jonesi*, n. sp.
Fig. 7. *Trypanea hebes*, n. sp.
Fig. 8. *Trypanea microstigma*, n. sp.
Fig. 9. *Eutreta pacifica*, n. sp.

FEMALE.—Head reddish yellow, with cinereous-yellow pollen, the cheeks paler; occiput with a rectangular black spot above the neck. Front wide, narrowing anteriorly; three pairs of convergent and one pair of reclinate frontals (a second pair of whitish reclinate bristles), the ocellar and vertical bristles blackish. Occipital cilia whitish. Occiput and cheeks with pale yellowish hair. Proboscis reddish, ferruginous below; palpi yellow. Antennæ reddish; hair black; arista brown. Head one-eighth higher than long, the oral margin produced.

Thorax black in ground color, cinereous pollinose, the humeri and notopleura yellow. Hair pale yellowish, the bristles of the dorsum black, although one on the notopleura may be yellow; sternopleural bristle yellow or black.

Legs reddish, the hair mostly pale yellow.

Wings whitish hyaline, with brown pattern as shown in the figure, the brown stigmal spot small and isolated.

Abdomen black in ground color, cinereous pollinose, the hair pale brassy yellow; ovipositor shining black, about three-fourths as wide as long, with black hair on the apical half.

TYPES.—Holotype, female and paratype, female, Crater Lake, Oregon, south rim, 7100 ft., July 29, 1930 (H. A. Scullen).

Trypanea hebes, new species

Figure 7

Readily distinguished by the total absence of a black stigmal spot and the presence of a deep brown spot behind the fifth vein. Length, 3 mm.

FEMALE.—Head reddish yellow, the occiput mostly black above the neck; upper half of the front, and the occiput mostly, honey yellow. Front wide, narrowing anteriorly; bristles brown; three pairs of convergent and one pair of reclinate frontals; ocellars long; the bristle behind the upper reclinate and the postocellars whitish. Occipital cilia and hair yellowish white. Cheeks moderately wide, the hair yellowish; face pale pollinose, the oral margin produced. Proboscis reddish; palpi reddish yellow. Antennæ reddish, the hair yellow; arista brown on the apical half.

Thorax black in ground color, thickly cinereous-white pollinose, the humeri and a broad stripe extending along the upper border of the pleura from in front of, and including, the notopleura, to behind the base of the wings, pale yellowish. Hair yellowish white; bristles brownish yellow.

Legs reddish yellow, the hair and most of the bristles pale yellowish.

Wings hyaline, with whitish tinge in some lights, the brown pattern as in the figure. Stigmal cell very pale yellowish. Squamæ cinereous, with brown border, the fringe pale. Halteres pale yellow.

Abdominal hair very pale yellowish; ovipositor almost twice as long as wide. Abdomen cinereous pollinose.

TYPES.—Holotype, female, Buck Creek, Wyoming, August 14, 1895 (Wheeler). Paratypes: one female, Buck Creek (Wheeler), and female, Gallatin Co., Montana, June 29, 1920 (A. L. Strand).

ACIURINA, new genus

Related to *Xanthacuira* Hendel but differing in having the front very much less

than twice as long as its width at the vertex. Scutellum with one pair of bristles; head short, one-third, or more, higher than long; scutellum very gently convex, not grooved; front anteriorly less than half as wide as the head; much longer than wide, bearing three pairs of convergent frontals; occipital cilia whitish.

GENOTYPE.—*Aciurina trixa*, new species.

This genus actually comes nearest to *Trypanea* Schrank, despite the mostly brown wings, but like *Aciura*, *Xanthaciura*, and *Dyseuaresta* the head of *Trypanea* is only a little higher than long. I know of only two species of *Xanthaciura: chrysura* Thomson and *insecta* Loew. Hendel, has shown that *Aciura* does not occur in America and it is obvious that the American species do not belong together despite similar wing pattern. All the species with two pairs of scutellars belong to *Tetraciura* Hendel, while the others are divided between *Xanthaciura* and *Aciurina*.

I have seen only three species belonging to *Aciurina* and all are undescribed. However, it appears certain from the descriptions that most of the Nearctic species belong in this genus and I have prepared a key for their separation.

TABLE OF SPECIES

1.—Legs yellow, the anterior femora sometimes partly black.....4.
All the femora at least broadly black basally.....2.
2.—An inverted V-shaped hyaline spot in the second posterior cell, the arms separated by a brown triangle.....*maculata* Cole.
A triangular hyaline spot in the second posterior cell.....3.
3.—Wings brown basally.....*pacifica*, n. sp.
Wings hyaline before the base of the discal cell.....*opaca* Coquilett.
4.—Scutellum partly or wholly yellowish.....5.
Scutellum black or brown.....*aplopappi* Coquilett.
5.—Thorax and abdomen shining yellowish.....*lutea* Coquillett.
Thorax opaque or black.....6.
6.—Apical cell wholly brown.....7.
Apical cell with an oblique hyaline spot apically.....*trixa*, n. sp.
7.—Third posterior cell with a round hyaline spot adjacent to the fifth vein. *ferruginea* Doane.
Third posterior cell without such spot.....*thoracica*, n. sp.

Aciurina pacifica, new species

Figure 4

Black, the abdomen shining red; head pale yellow. Length, 4.5 mm.

FEMALE.—Head pale yellow; occiput blackish in ground color except along the broad posterior orbits. Front wide, the sides converging anteriorly, the bristles black. Hair yellow; occipital cilia pale yellowish. Cheeks about one-sixth as wide as the eye-height. Proboscis, palpi and antennæ yellow, the arista mostly brown.

Thorax black, the scutellum obscurely reddish apically; hair very pale yellowish, only moderately abundant on the mesonotum; bristles black.

Coxæ, trochanters, and basal half or more of the femora black, the anterior four femora reddish on the under surface; apex of femora and the tibiæ and tarsi pale reddish yellow; hair and bristles black.

Wings brown, with whitish hyaline markings as shown in the figure. Squamæ cinereous hyaline. Knob of halteres brown.

Abdomen shining reddish, the immediate base, a broad, interrupted fascia on the dorsum of the fourth segment, the fifth segment and the ovipositor, shining black. Hair black, short and not conspicuous.

TYPE.—Female, Yakima, Washington, April 19, 1931 (W. W. Baker).

This species resembles *trixa* superficially but may be at once distinguished by the brown base of the wings, extensively black legs, more extensively black thorax with its less abundant pile, etc.

Aciurina trixa, new species

Figure 5

Black, the abdomen red; head pale yellow. Length, 4.5 mm.

FEMALE.—Head pale yellow; hair and bristles pale yellow. Front wide, the sides convergent anteriorly. Cheeks one-fifth as wide as the eye-height. Palpi, proboscis, and antennæ yellow; third antennal segment not twice as long as wide, the upper apex obtuse; arista brown except basally.

Thorax black, the sides of the mesonotum in front of the wings, the anterior border of the pleura broadly, the pleural sutures and the apical half of the scutellum yellow. Hair and bristles pale yellowish, the appressed hair on the mesonotum abundant.

Legs yellow, with yellow hair and bristles.

Wings brown, with hyaline markings as shown in the figure, the base of the wings pale yellowish. Squamæ and halteres pale yellow.

Abdomen shining reddish, with sparse, pale yellowish hair. Ovipositor shining black, the preceding segment more or less black or brown dorsally.

TYPES.—Holotype, female, Stansbury Island, Utah, June 13, 1913 (Hagan Titus). Paratype, female, Collinston, Utah, July 21, 1927, on beets (G. F. Knowlton).

Aciurina thoracica, new species

Figure 3

Rusty reddish and yellowish, the mesonotum black in ground color. Length, 6 mm.

FEMALE.—Head reddish yellow, clothed with yellowish pollen, occiput brown in ground color above the neck. Bristles black; hair yellow. Front wide, with parallel sides. Occipital cilia mixed whitish and black. Cheeks one-fifth as wide as the eye-height. Palpi yellowish, the proboscis reddish yellow. Antennæ reddish yellow; third segment not twice as long as wide, the upper apex subangular.

Thorax rusty yellowish; mesonotum black in ground color, the sides yellowish, covered with brownish-yellow pollen and abundant, appressed, pale yellowish hair,

the bristles brownish yellow. Pleura with sparse black hair, the bristles black. Scutellum reddish yellow, with a dark spot on either side toward the apex.

Legs rusty reddish yellow, the anterior femora darkened posteriorly; hair and bristles black.

Wings reddish brown, with hyaline areas as shown in the figure. Squamæ brownish gray. Halteres yellowish, the apex of the knob brown.

Abdomen rusty reddish, the second to fourth segments dorsally with broad ferruginous fasciæ which may be interrupted in the middle. Hair black, sparse. Ovipositor shining black, the basal third of the ventral surface reddish.

TYPE.—Female, San Diego Co., California (Wheeler Collection).

EUCOSMOPTERA Phillips

The three species occurring in the United States are separable as follows. The wings of all the species are figured by Phillips.[1]

TABLE OF SPECIES

1.—Thorax reddish yellow.....2.
Thorax black.....*tetraspina* Phillips.
2.—Apical cell crossed by two hyaline triangles on the apical half.
limata Coquillett.
Apical cell containing a small, round, hyaline spot near the middle.
nigricornis Doane.

ALEOMYIA Phillips

Since the publication of my key to the species belonging to this genus I have identified the two previously described species and now present a revised key. In the several specimens of *caurina* Doane there is a quite marked variation in the wing pattern and Doane's figure is from a poorly colored specimen. Two of my specimens agree with Doane's figure except that the subapical brown fascia is not interrupted.

REVISED TABLE OF SPECIES

1.—Thorax wholly yellow; oral margin very strongly produced; legs wholly yellowish.....*alpha* Phillips.
Mesonotum mostly black in ground color; oral margin moderately produced..2.
2.—Anterior coxæ yellow, the others brown; mesonotum very broadly reddish in front of the scutellum.....*rufipes* Curran.
All the coxæ black, the femora usually more or less black basally and sometimes posteriorly; mesonotum wholly black in ground color....*caurina* Doane.

Aleomyia alpha Phillips

PHILLIPS, 1923, Journ. N. Y. Ent. Soc., XXXI, p. 124 (f.).

One female from Valley of Black Mts., N. C., August 9, 1906 (W. Beutenmuller).

[1]1923, Journ. N. Y. Ent. Soc., XXXI, pp. 119–155.

Unlike the other two species, *alpha* is almost wholly rusty yellowish and has the face remarkably produced. The species is recorded from Maryland.

Aleomyia caurina Doane

Rhagoletis caurina Doane, 1899, Journ. N. Y. Ent. Soc., VII, p. 182.

Six females, Colorado Lake, Oregon, August 8–15, 1931, reared from *Grindelia nana* Nutt (S. C. Jones); three males and one female, San Diego Co., California, March 12, 14, 1897 (Wheeler Collection).

This species is easily recognized by its black coloration. The thorax is black except for a stramineous stripe extending from the humeri to the base of the wings. The scutellum is yellow with the lateral fourth to one-third shining black. In *rufipes* Curran the mesonotum and pleura bear extensive reddish-yellow markings.

Trypeta versatilis, new species

Figure 2

Rusty yellowish; mesonotum pollinose; abdomen shining and bearing four series of roundish black spots. Length, 4.5 to 5 mm.

Female.—Head whitish yellow, the front and upper half of the occiput sulphur-yellow. Front wide, narrowed anteriorly, with sparse black hair; three pairs of convergent frontals, one pair of reclinate frontals and above these a pair of weak, convergent bristles; ocellars short; postocellars strong; occipital cilia black and acute, hair of the occiput yellow. Cheeks narrow, the hair black. Face thinly white pollinose, the antennal grooves broad. Proboscis and palpi yellow. Antennæ yellow, very pale basally; hair black; arista bare, brown, the swollen base reddish.

Thorax rusty reddish, the mesonotum with similarly colored pollen, the hair and bristles black; a broad pale yellow stripe extends over the humeri, the upper border of the pleura and the scutellum, a similarly colored stripe above the wings and on the upper edge of the hypopleura; metanotum with a pair of black spots beneath the scutellum. Hair of propleura yellow. Dorsocentral bristles situated only a little in front of the acrosticals; scutellum with short black hair toward the sides.

Legs yellowish, the apical tarsal segment brownish; hair black; posterior tibiæ ciliate with short black bristles anterodorsally.

Wings hyaline, marked with yellow and brown as shown in the figure. Squamæ cinereous, the border and fringe pale brownish. Halteres pale yellow.

Abdomen shining rusty yellowish, on the dorsum with two series of roundish, moderately large, shining black spots, four in each row, and on either side with a series of three spots. Ovipositor rusty reddish, the apex broadly blackish, the base with a moderately large black spot on either side. Hair black. Venter reddish yellow, the hair yellow except apically.

Male.—Genitalia with a very large black spot on either side.

Types.—Holotype, female, Antelope Mt., Harney County, Oregon, 6500 ft.,

August 12, 1931; allotype, male, August 19 (D. K. Frewing). Paratypes: seven females, Antelope Mt., August 2, 3, 7, 10, 11, and 16, 1931 (D. K. Frewing).

As I do not have typical examples of *Trypeta* for examination I am not certain that this species belongs in the genus, although it must come close. The arrangement of the dorsocentral and acrostical bristles in an almost straight line is characteristic of this species, and the fact that the upper pair of frontals is convergent instead of reclinate is an important character. The third antennal segment is angular or rounded at the upper apex. The genus *Epochra* Loew bears only a single strong reclinate frontal bristle and is thereby distinguished from *Zonosema* Loew; these two genera have the dorsocentrals situated far in front of the acrosticals, so that it would appear that there are two pairs of dorsocentrals.

This species may be distinguished from the described species of *Trypeta* by the broad yellow costal border.

TOMOPLAGINA, new genus

Differs from *Tomoplagia* Coquillett in having the front almost twice as wide as long and the anal cell oblique apically and not drawn out into a long point; three pairs of frontals, the upper pair reclinate; anterior pair of dorsocentrals situated close to the suture; scutellum with four bristles. Wing markings as in *Tomoplagia* but the yellowish-brown bands wider; costa broken at end of auxilliary vein; the subcostal vein oblique apically but weak; anal cell oblique apically. Ovipositor subcylindrical, elongate, much as in species of *Anastrepha* Schiner.

GENOTYPE.—*Tomoplagina maculata*, new species.

While this genus agrees in wing markings with *Tomoplagia* the shape of the ovipositor and wide front indicate that it is closely related to *Anastrepha*.

Tomoplagina maculata, new species

Rusty reddish-yellow, with black spots. Length, about 5 mm.

FEMALE.—Head twice as high as long, pale yellow, with whitish pollen; hair yellow, the bristles black. Front with three pairs of frontals, the upper pair reclinate; ocellars long and strong; each bristle arises from an opaque black spot. Occiput narrow; cheeks half as wide as the eye-height, higher than long, with a brown spot in front adjacent to one on the oral angles; face with a transverse opaque black spot on either side opposite the base of the antennæ. Proboscis, palpi and antennæ yellowish, the hair black; third antennal segment one-half longer than wide, the upper apical corner sharply rounded.

Mesonotum with yellowish pollen on the median half, the hair pale yellow and appressed; bristles black, each bristle arising from a black spot. Scutellum convex, the apex very shallowly longitudinally depressed, with a brown spot below on either side. Metanotum brownish.

Legs with black hair and bristles.

Wings pale yellowish-brown and hyaline, banded as in *Tomoplagia*,[1] the brown bands wider than the hyaline ones; auxiliary cell yellowish brown.

The abdominal bristles arise from deep black spots. Ovipositor rusty reddish, cylindrical, bearing black hair. The abdomen is damaged dorsally so I am unable to make out the details.

TYPE.—Female, Gotha, Florida, March, 1896 (Wheeler Collection).

EUTRETA Loew

This genus contains species in which the wing is brown with numerous small, more or less round, yellowish, cinereous or hyaline spots and the apex with a crescentric hyaline or whitish band. The spots sometimes tend to unite, especially in the discal and third posterior cell. The genus divides naturally into two groups: those with long black antennæ, represented by *longicornis* Snow and two additional species, and those with shorter, reddish-yellow antennæ. The second group may be again divided upon the presence of absence of dull black spots on the lower half of the face. In her treatment of the eastern trypaneids Mrs. Phillips separated the species upon the presence or absence of setulæ on the third longitudinal vein, but the character is valueless as the setulæ are present in all the species I have seen and the distance to which they extend along the vein varies in the same species.

As the Museum possesses examples of the Nearctic species, with the exception of *rotundipennis* Loew, I present a key for their separation.

TABLE OF SPECIES

1.—Face yellow, with two black spots below and usually other markings.....2.
Face yellow, brown or black, usually pollinose.....4.
2.—Front strongly narrowing anteriorly.....*frontalis*, n. sp.
Front not strongly narrowing anteriorly, of almost equal width.....3.
3.—Pale spots separated from the hyaline wing-tip by a very broad brown band. *sparsa* Wiedemann.
Pale spots separated from the hyaline wing-tip by a rather narrow impunctate band.....*pacifica*, n. sp.
4.—Third antennal segment black.....5.
Antennæ yellow.....7.
5.—Face shining black, without pollen.....*longicornis* Snow.
Face brown or yellow, pollinose.....6.
6.—Face brown, pale pollinose.....*facialis*, n. sp.
Face yellow in ground color.....*oregona*, n. sp.
7.—Pteropleura with yellow squamose hairs, the bristle sometimes black.....8.
Pteropleura with black hairs and bristles.....*jonesi*, n. sp.

[1]See Phillips, 1923, Journ. N. Y. Ent. Soc., XXXI, Pl. XVIII, fig. 18.

8.—The hyaline apex of the wing is interrupted along the veins. . *rotundipennis* Loew.
The hyaline apex of the wing is not interrupted. . . . . 9.
9.—Abdomen brown, with yellow apex, distinctly pollinose; scutellum luteous in ground color; bristles mostly yellowish. . . . . *pollinosa*, n. sp.
Abdomen brown or red and brown, sometimes almost all red; scutellum black. *diana* Osten Sacken.

Eutreta frontalis, new species

Front gradually narrowing from the vertex to the anterior margin; second antennal segment mostly yellow-haired above. Length, 5 to 6.5 mm.

FEMALE.—Head reddish yellow, the pollen whitish; posterior orbits broadly pale yellowish on the lower half; occiput reddish on the upper half, with a small brown spot near the middle of the posterior orbits. Front evenly narrowing anteriorly. Occipital cilia black and whitish, the pale bristles long. Face with a reddish-brown spot on either side of the anterior oral margin, a roundish black spot on either side of the lower part of the facial depression, and a small oblique black spot on the orbits opposite the base of the antennæ. Proboscis and palpi reddish yellow, the palpi with short, coarse, black hair. Antennæ reddish, the arista brown with pale base; second segment with mostly yellow hair.

Thorax rusty reddish, yellowish pollinose, the sides of the mesonotum with brownish-red pollen in front of the wings. Hair very pale yellowish, black on the sternum; bristles black.

Legs reddish, the hair mostly black; bristles black; anterior femora with a more or less evident blackish vitta posteriorly.

Wings as in *sparsa* Wiedemann[1] but more grayish brown in color, the apex white.

Abdomen rusty reddish or reddish yellow, the intermediate segments with paired, transverse, brownish spots basally, the spots sometimes forming interrupted fasciæ. Hair mostly black, the abdomen without conspicuous pollen. Ovipositor shining reddish, the apex broadly black or brown. Bristles black or brown.

MALE.—Second free segment of the abdomen and the two following brown, a median vitta and the posterior and lateral borders yellow; pollen cinereous yellow, quite obvious on the dark areas.

TYPES.—Holotype, female, valley of Black Mountains, North Carolina, August 5, 1906 (W. Beutenmuller); allotype, male, Black Mountains, N. C., June. Paratypes: male, Crugers, New York, July 3, 1912; male, Lackawaxen, Pennsylvania, August 22, 1895 (J. L. Zabriskie); male, Myrtle, Manitoba, August 13, 1928 (R. D. Bird); female, Hazelton, Pennsylvania, August 27, 1909 (Dietz); female, valley of Black Mountains, North Carolina, July 11, 1906 (W. Beutenmuller); female, Black Mountains, N. C., June.

This species is close to *sparsa* Wiedemann but is readily separated by the decidedly narrower front and narrower face. In *sparsa* the front is narrowed anteriorly, but much less so than in *frontalis*, and the hair on the second antennal segment is coarser and all black on the upper surface. The general coloration of *frontalis* is paler and there is no darker band extending over the middle of the pleura. In *sparsa* the short hair on the

[1]Phillips, 1925, Journ. N. Y. Ent. Soc., XXXI, Pl XIX, fig. 39

upper border of the mesopleura almost always has a salmon tinge, but it is pure white in *frontalis*.

Eutreta pacifica, new species

Figure 9

Related to *sparsa* Wiedemann but distinguished by having the pale wing spots separated from the hyaline apex by a very much narrower impunctate band, the presence of two hyaline spots along the posterior border of the wing beyond the fifth vein, and more grayish-brown color of the wings. Length, 5 mm.

MALE.—Head yellow, the front more reddish in the middle; upper half of the occiput brown. Front wide, the sides parallel on more than the upper half. Ocellars long. Occiput with cinereous white pollen, the occipital cilia mixed black and yellow. Cheeks yellow, with a brown spot in front narrowly separated from one on the oral margin. Face with a pair of large, dull black spots below the middle and a large one on either orbit opposite the antennæ. Proboscis reddish; palpi reddish yellow, the hair black and coarse. Antennæ reddish yellow; second segment with short black hair above; third segment angulate at upper apex, scarcely twice as long as wide. Arista brown, with yellow base.

Thorax rusty reddish in ground color, with cinereous-yellow pollen. Hair yellowish tinged; bristles brownish.

Legs reddish yellow; anterior femora obscurely brown posteriorly at the base; bristles black.

Wings grayish brown, with numerous yellowish hyaline spots as shown in the figure. Squamæ and halteres yellow.

Abdomen rusty reddish, the third and fourth segments more or less brownish; pollen rather yellowish.

TYPE.—Male, Pomona, California.

Eutreta facialis, new species

Related to *longicornis* Snow but the face is whitish pollinose instead of shining black. Length, 5 mm.

FEMALE.—Face brown, whitish pollinose, the oral margin narrowly pale yellow. Front pale dull yellow, the lunule and ocellar triangle brownish; orbits white pollinose; bristles brownish yellow. Occiput shining black, the orbits narrowly yellow; occipital cilia yellow, with short black bristles between the pale ones. Cheeks pale yellow. Proboscis reddish, brown below. Palpi yellow, becoming brown below on the apical half, with black, bristly hair in addition to fine pale hairs. Antennæ black, as long as the face, the third segment concave above; arista reddish basally.

Thorax shining black; very thinly whitish pollinose; scutellum brownish; humeri, notopleura and the pleura about the base of the wings brownish yellow. Hair very pale yellow; bristles brownish yellow, the pteropleural bristle white.

Coxæ and trochanters reddish; femora black, the bristles yellow; tibiæ reddish yellow, the anterior pair with the median half or more brownish; tarsi pale reddish yellow.

Wings brown, with numerous small, round, cinereous hyaline spots, those in the

discal and third posterior cells large, in the discal cell mostly more or less confluent; apex of the wing whitish hyaline. Squamæ cinereous white; halteres reddish yellow.

Abdomen blackish brown, the apical segment and middle and sides of the ovipositor dark reddish. Hair pale yellowish, black on the ovipositor.

TYPE.—Female, Huntley, Montana, July 19, 1919 (A. L. Strand).

Eutreta oregona, new species

Related to *longicornis* Snow but readily distinguished by the wholly yellow face. Length, 3 to 3.25 mm.

MALE.—Face pale yellow, the front more reddish yellow, with three black spots above, one on either side, the other extending over the ocellar triangle; frontal orbits white pollinose; front with parallel sides. Occiput shining blackish, the occipital cilia mixed yellow and black; cheeks shining black except in front. Proboscis brown below; palpi reddish yellow. Face very thinly pale pollinose. Antennæ black, reaching to the oral margin, the second segment sometimes brownish.

Thorax brownish black, very thinly pale pollinose, the hair whitish, not very abundant; bristles yellow.

Coxæ and femora black, yellow-haired; tibiæ brown, the anterior four with black hair; tarsi reddish yellow.

Wings brown, with numerous small, roundish, grayish hyaline spots. Squamæ and halteres yellow.

Abdomen brown, very thinly cinereous pollinose, the hair pale yellow; apical bristles very weak and yellowish.

TYPES.—Holotype, male, Blitzen River, Oregon, July 6, 1906. Paratypes: male, Narrows, Oregon, July 1, 1906, and male, Warm Springs V, Oregon, July 7, 1906. There is also a teneral specimen bearing the same data as the holotype.

Eutreta pollinosa, new species

Related to *diana* Osten Sacken but with thickly pollinose mesonotum and wholly yellow bristles on the thorax. Differs from *rotundipennis* Loew in the narrower wings and the entire apical hyaline band. Length, about 3 mm.

MALE.—Head reddish yellow in ground color, the occiput paler below, darker above and with a large rectangular black spot above the neck. Front wide, with almost parallel sides, the hairs and bristles yellow. Occiput whitish pollinose below, yellowish above, the occipital cilia mixed black and whitish. Face and frontal orbits with white pollen, the former without black spots. Palpi and proboscis reddish yellow, the palpi with only a few short black hairs. Antennæ reddish, short, the arista brown on the apical half or more.

Thorax apparently black in ground color, with the scutellum, upper border of the pleura in front of the wings and most of the mesopleura yellowish. Humeri and notopleura pale in ground color. Pollen thick, brownish yellow. Hair and bristles yellow.

Legs reddish yellow, the hair and bristles of the same color.

Wings brown, the apex hyaline; disk with abundant yellowish hyaline spots, those in the discal cell mostly more or less fused, the spots larger than usual. Squamæ and halteres pale yellow.

Abdomen black in ground color, the apex yellow, moderately cinereous pollinose; hair and bristles pale yellowish. Genitalia brownish red.

TYPE.—Male, Antelope Mt., Harney Co., Oregon, 6500 ft., September 4, 1931 (D. K. Frewing).

Eutreta jonesi, new species

Related to *diana* Osten Sacken but distinguished by the presence of only black hairs and bristles on the pleura, the propleura alone with a few whitish hairs. Length, about 5 mm.

MALE.—Head black, the face, cheeks and front pale yellow, the face and cheeks with whitish pollen. Front wide, with almost parallel sides, the bristles brown, the hair very pale yellow. Occiput shining, the occipital cilia mixed black and white. Proboscis yellow; palpi pale yellow, with pale yellow hairs and a few black bristles. Antennæ reddish yellow, short; second segment with black hair; arista mostly brownish.

Thorax shining black; mesonotum with moderately abundant appressed pale yellow hair; bristles brownish or brownish red.

Legs blackish, the tips of the tibiæ, and the tarsi entirely, reddish; knees very narrowly reddish. Hair and bristles black.

Wings dark brown, with numerous small hyaline spots as in *diana* Osten Sacken.[1] Squamæ cinereous, with brown border. Halteres yellow, the apical half brownish red.

Abdomen shining black, the basal one or two segments more or less brick-red, especially toward the sides. Ovipositor shining black. Hair mostly black, in some views appearing brownish.

TYPES.—Holotype, female, Antelope Mt., Harney Co., Oregon, 6500 ft., July 7, 1931 (D. K. Frewing). Paratype, male (?) (abdomen missing), Stein Mountains, Harney Co., Oregon, June 25, 1922 (W. J. Chamberlain).

In *diana* Osten Sacken the pteropleura bears yellowish or whitish hair in addition to the one or two black bristles and the hair on the mesopleura is wholly pale yellowish.

Eutreta diana Osten Sacken

OSTEN SACKEN, 1877, 'Western Diptera,' p. 347.
Eutreta diana tricolor SNOW, 1894, Kans. Univ. Quart., II, p. 168.
PHILLIPS, 1923, Journ. N. Y. Ent. Soc., XXXI, p. 141, (f.).

Male, Colorado (Wheeler Collection); female, Lusk, Wyoming, August 26, 1895 (Wheeler); female, Medicine Hat, Alberta, Canada, August 21, 1924 (F. S. Carr); male and two females, Musselshell Co., Montana, August 18, 1917 (A. L. Strand?).

The males may have the abdomen red with the fourth segment black or brown or wholly brown, while the females have the abdomen red with the ovipositor, and sometimes the fourth segment, black.

[1]Phillips, 1925, Journ. N. Y. Ent. Soc., XXXI, Pl. XIX, fig. 41.